Oxford Cambridge and RSA

GCSE Biology A (Gateway)

J247/01 B1-B3 and B7 Foundation (Foundation Tier)

Question Set 13

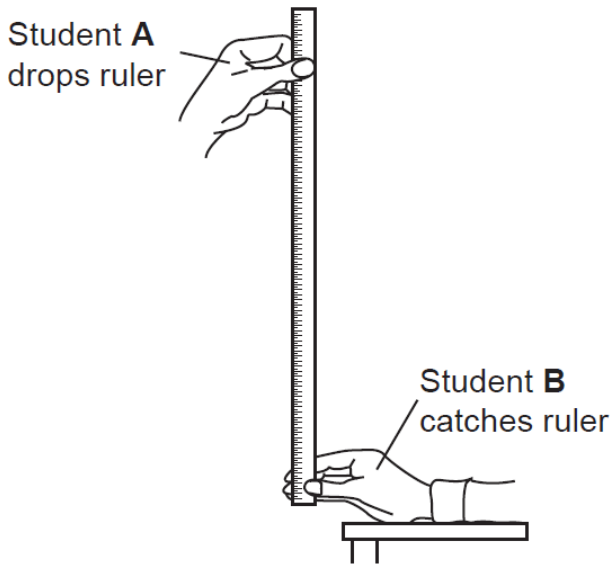
1

A class of students investigate reaction time.

Student **A** drops a ruler while student **B** catches it.

They then measure the position of student **B**'s thumb on the ruler; this is the drop distance.

The diagram shows how the measurements were taken.



The drop distance is converted into a reaction time. The reaction time in seconds for each hand is recorded.

The table shows the results for ten **right-handed** students in the class.

Reaction time(s)	
Left non-dominant hand	**Right dominant hand**
0.22	0.28
0.23	0.25
0.27	0.23
0.24	0.24
0.25	0.24
0.25	0.25
0.25	0.26
0.25	0.26
0.25	0.26
0.27	0.23
Mean = 0.25	Mean = 0.25

(a) **(i)** Calculate the **mode** for the right dominant hand.

Answer = ... seconds

[1]

(ii) The mean and mode for the left non-dominant hand are identical.

What **other** conclusions can be made about reaction times in these ten students?

[2]

(b) How could these students improve the recording of their results?

[2]

(c) The students want to investigate reaction times to see if left-handed people are faster than right-handed people.

How could they develop the experiment to test this?

[3]

(d) The reaction in the experiment involves a **stimulus**.

What is the stimulus in the reaction involving catching the ruler?

[1]

(e) Complete the sequence of a reflex arc.

Stimulus→	.....	Sensory neurone→	CNS→	....	Effector→	Response

[2]

Total Marks for Question Set 13: 11